Applicant: Shunpei Yamazaki, et al.

Attorney's Docket No.: 12732-051002 /
Serial No.: New Application US4976/4978/4981/4982D1

Serial No.: New Application Filed: December 5, 2003

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#### Amendments to the Specification:

### Beginning at page 1, line 3, please insert the following paragraph:

#### **CROSS-REFERENCE TO RELATED APPLICATIONS**

This application is a divisional application of U.S. Application Serial No. 09/874,204, filed on June 6, 2001, now allowed, which claims the benefit from foreign priority applications filed in Japan, as serial number 2000-176173, filed June 12, 2000, serial number 2000-176188, filed June 12, 2000, serial number 2000-177641, filed June 13, 2000, and serial number 2000-177652, filed June 13, 2000. This application claims priority to all of these applications, and all of these applications are incorporated by reference.

# Please replace the paragraph beginning at page 3, line 23 with the following rewritten paragraph:

This invention provides a TFT having a channel-forming region formed of a crystalline semiconductor film obtained by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a main component and germanium in an amount of not smaller than 0.1 atomic % but not larger than 10 atomic % (preferably, not smaller than 1 atomic % but not larger than 5 atomic %) while adding a metal element thereto, wherein an orientation ratio of the lattice plane {101} is not smaller than 20% [[ef]] and the lattice plane {101} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 3% [[ef]] and the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 5% [[ef]] and the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.

# Please replace the paragraph beginning at page 4, line 11 with the following rewritten paragraph:

The invention further provides a TFT having a channel-forming region formed of a crystalline semiconductor film obtained by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a main component and germanium in an amount of not

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smaller than 0.1 atomic % but not larger than 10 atomic % (preferably, not smaller than 1 atomic % but not larger than 5 atomic %) while adding a metal element thereto, wherein an orientation ratio of the lattice plane {101} is not smaller than 5% [[ef]] and the lattice plane {101} has an angle of not larger than 5 degrees with respect to the surface of the semiconductor film, an orientation ratio of the lattice plane {001} is not larger than 3% [[ef]] and the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 5% [[ef]] and the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.

# Please replace the paragraph beginning at page 5, line 2 with the following rewritten paragraph:

The invention further provides a semiconductor device having a channel-forming region formed of a semiconductor film obtained by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a main component and germanium in an amount of not smaller than 0.1 atomic % but not larger than 10 atomic % (preferably, not smaller than 1 atomic % but not larger than 5 atomic %) while adding a metal element thereto, wherein an orientation ratio of the lattice plane {101} is not smaller than 20% [[ef]] and the lattice plane {101} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 3% [[ef]] and the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 5% [[ef]] and the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.

# Please replace the paragraph beginning at page 5, line 14 with the following rewritten paragraph:

The invention further provides a semiconductor device having a channel-forming region formed of a semiconductor film obtained by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a chief component and germanium in an amount of not

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smaller than 0.1 atomic % but not larger than 10 atomic % (preferably, not smaller than 1 atomic % but not larger than 5 atomic %) while adding a metal element thereto, wherein an orientation ratio of the lattice plane {101} is not smaller than 5% [[ef]] and the lattice plane {101} has an angle of not larger than 5 degrees with respect to the surface of the semiconductor film, an orientation ratio of the lattice plane {001} is not larger than 3% [[ef]] and the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 5% [[ef]] and the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.

# Please replace the paragraph beginning at page 44, line 7 with the following rewritten paragraph:

As described above, this invention makes it possible to obtain a crystalline semiconductor film by heat-treating and crystallizing an amorphous semiconductor film containing silicon as a main component and germanium in an amount of not smaller than 0.1 atomic % but not larger than 10 atomic % (preferably, not smaller than 1 atomic % but not larger than 5 atomic %) while adding a metal element thereto, wherein an orientation ratio of the lattice plane {101} is not smaller than 20% [[ef]] and the lattice plane {101} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 3% [[ef]] and the lattice plane {001} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film, and an orientation ratio of the lattice plane {001} is not larger than 5% [[ef]] and the lattice plane {111} has an angle of not larger than 10 degrees with respect to the surface of the semiconductor film as detected by the electron backscatter diffraction pattern method.